



Linux

CPT-201

<http://cpt201.hubner.org/>

Test 2 Overview

- `mkdir -p`
- `man -k`
- `man passwd`
- `man 5 passwd`
- `tail -n 29 top500.txt | head -n 1`
- `grep -i "Devon" top500.txt`
- `$HOMEDIR = ~`

The Case for FLOSS

Paper

- * 2 pages

Presentation

- * 10-15 minutes

Topics

- * Business Desktop
- * Consumer Desktop
- * Server
- * Virtualization Platform
- * Education Platform
- * Media Production
- * Developers
- * Smart TV's
- * Technology on-ramp
- * Windows 8 sucks

Timeline

- * Oct 31 - Discuss Final
- * Nov 14 - Status Check
- * Dec 05 - Presentations
- * Dec 12 - Presentations
- * Dec 12 - Paper Due

THE FINAL



Review for Test 3

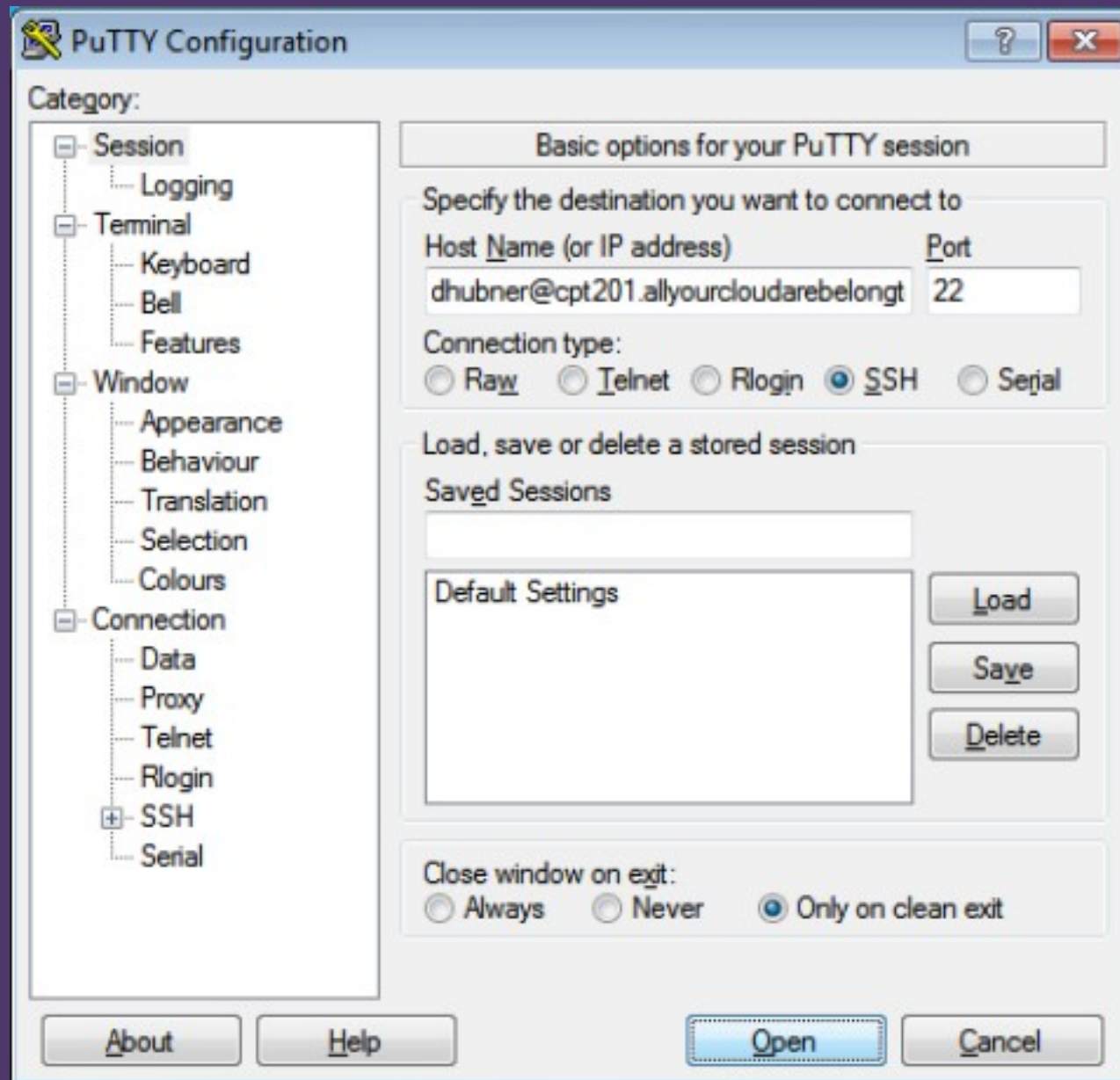
• SSH = Secure SHell

```
ec2-user@cpt201:~  
ec2-user@cpt201:~ 74x24  
(15:24:35) [devon@t510-dhubner:~] ssh ec2-user@cpt201.allyourcloudarebelongtous.com  
Last login: Wed Oct 24 19:23:58 2012 from me-gw.desknetinc.com  
  
  _|  _|  _|  _|  
  _|  (  _|  _|  _|  Amazon Linux AMI  
  _|  \  _|  _|  _|  
  
https://aws.amazon.com/amazon-linux-ami/2012.03-release-notes/  
There are 19 security update(s) out of 126 total update(s) available  
Run "sudo yum update" to apply all updates.  
Amazon Linux version 2012.09 is available.  
  
  Bash Cheatsheet  
  _____  
  | nano    : Edit a Text File      | ls      : List Directory      |  
  | cd      : Change Directory      | pwd     : Print Working Directory |  
  | mkdir   : Make Directory        | rmdir   : Remove Directory     |  
  | less    : View a File           | cat     : Dump a File         |  
  | man     : Display Man Page      | grep    : Search a File       |  
  | head    : Display top of file   | tail    : Display bottom of file |  
  | exit    : Logoff                |  
  |_____|  
  
(19:24:43) [ec2-user@cpt201.crabdance.com:~] █
```

• ssh username@hostname

```
ec2-user@cpt201:~  
ec2-user@cpt201:~ 74x24  
(15:24:35) [devon@t510-dhubner:~] ssh ec2-user@cpt201.allyourcloudarebelongtous.com  
Last login: Wed Oct 24 19:23:58 2012 from me-gw.desknetinc.com  
  
  _|  _|  _|  _|  
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  | head      : Display top of file   | tail     : Display bottom of file |  
  | exit      : Logoff                |  
  |_____|  
  
(19:24:43) [ec2-user@cpt201.crabdance.com:~] █
```

PuTTY = SSH Client on Windows



Getting Around the CMCC Firewall

- SSH Runs on Port 22
- CMCC Blocks Out-Bound Port 22
- You can run an SSH server on a different port
- SSH using port 80

```
ssh -p 80 username@hostname
```


SSH to our CPT201 server

- Port: 80
- Hostname: cpt201.allyourcloudarebelongtous.com
- Username: <First-Initial-Firstname><Lastname>
- Password: !cpt201!

```
ssh -p 80
```

```
dhubner@cpt201.allyourcloudarebelongtous.com
```

Permissions

- u = User
- g = Group
- o = Other (world)

Permission Bits

- **r** = **R**ead
- **w** = Write
- **x** = e**X**ecutable

User - Group - Other

```
chmod u+x myfile.txt
```

```
chmod g=rx myfile.txt
```

```
chmod o-rwx myfile.txt
```

```
-rwxr-x--- 1 devon devon 0 Oct 24 18:50 myfile
```

- User = Read, Write
- Group = Read
- World = Nothing

- User = Read, Write, Execute
- Group = Read, Execute
- World = Read, Execute

- User = Read, Write, Execute
- Group = Read, Write, Execute
- World = Read, Write, Execute



File Compression

Create Zip File

```
zip -9 -r /tmp/home.zip /home
```

-9 = max compression

-r = recurse



File Compression

Create Tar File

```
tar cvf /tmp/home.tar /home
```

c = create

v = verbose

f = file

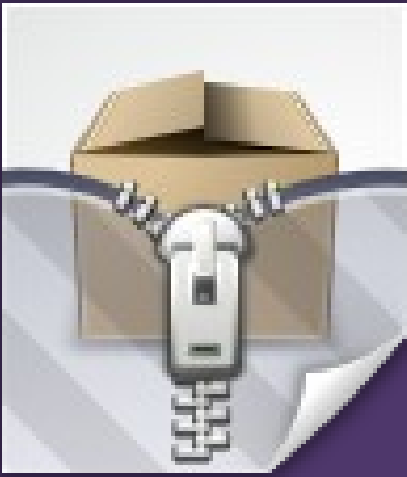


File Compression

gzip Compress a File

```
gzip -9 /tmp/home.tar
```

```
ls -al /tmp/home.tar*
```



File Compression

Create Tarball

```
tar czvf /tmp/home.tar.gz /home
```

c = create

v = verbose

f = file

z = gzip compress



Users and Groups



/etc/passwd



/etc/shadow



/etc/group



Users and Groups

useradd <username>

passwd <username>



Users and Groups

groupadd <groupname>



Users and Groups

/etc/group

wheel : x : 10 : devon

apache : x : 10 : cpt201,devon

Test 3 Review

- Week 6 - Oct 03 - Test 1 - GNU/Linux, Licensing, RedHat, CentOS, Canonical, Ubuntu, Linus Torvaldes, Richard Stallman, Mark Shuttleworth
- Week 9 - Oct 29 - Test 2 - Linux Commandline
- Week 12 - Nov 14 - Test 3 - System Admin
- Week 15/16 - Dec 5/12 - Final

Use **yum** and **apt** to install apps

```
yum install -y git
```

```
apt-get install -y git
```

Fix Up Sudo

- We're going to start relying on Sudo, so lets make sure it works for everybody...
- You should be able to do this command:

```
sudo su -
```

- If you can't, make sure:
 - Your **Username** is part of the **wheel** group
 - **/etc/sudoers** contains:

```
%wheel  ALL=(ALL)  NOPASSWD:  ALL
```

Bash Scripts

- Bash is in essence a command interpreter, making it a programming language.
- To call a bash script:

```
bash penguin.sh
```

- Or

```
chmod +x penguin.sh  
./penguin.sh
```

HashBang / SheBang

- If a script is executable (+x) then the top line will be used as the interpreter for the script.
- The interpreter line is called a **HashBang** or **SheBang**.

! /bin/bash

HashBang / SheBang

- Bash: `#!/bin/bash`
- Ruby: `#!/usr/bin/ruby`
- Python: `#!/usr/bin/python`
- Perl: `#!/usr/bin/perl`
- PHP: `#!/usr/bin/php`

- *Pull it from the environment:*

`#!/bin/env ruby`

Permissions

- +x Add Executable
- +r Add Read
- +w Add Write

- -x Remove Executable
- -r Remove Read
- -w Remove Write

Enable Web Admin Support

/etc/cups/cupsd.conf

SystemGroup sys root wheel lp lpadmin devon

WebInterface Yes

Listen *:631

Listen /var/run/cups/cups.sock

<Location />

Order allow,deny

Allow 192.168.0.0/16

Allow 127.0.0.1

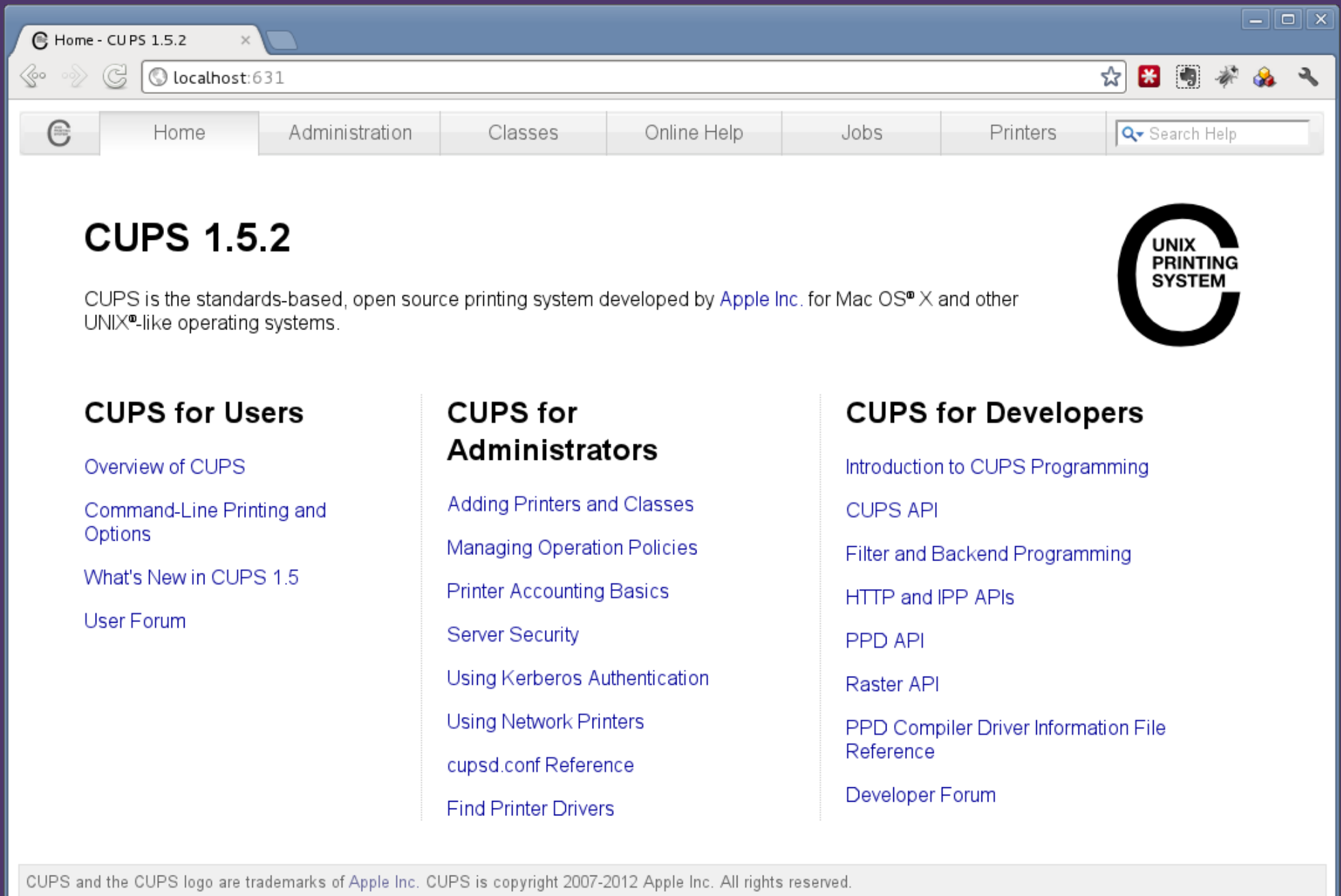
</Location>

Restart the CUPS daemon

sudo su -

service cups restart


<http://localhost:631/>



The screenshot shows a web browser window with the title "Home - CUPS 1.5.2". The address bar displays "localhost:631". The browser's toolbar includes navigation buttons, a search icon, and several status icons. Below the toolbar is a navigation menu with links: Home, Administration, Classes, Online Help, Jobs, and Printers. A search bar labeled "Search Help" is located on the right side of the menu.

CUPS 1.5.2

CUPS is the standards-based, open source printing system developed by [Apple Inc.](#) for Mac OS® X and other UNIX®-like operating systems.



CUPS for Users

- [Overview of CUPS](#)
- [Command-Line Printing and Options](#)
- [What's New in CUPS 1.5](#)
- [User Forum](#)

CUPS for Administrators

- [Adding Printers and Classes](#)
- [Managing Operation Policies](#)
- [Printer Accounting Basics](#)
- [Server Security](#)
- [Using Kerberos Authentication](#)
- [Using Network Printers](#)
- [cupsd.conf Reference](#)
- [Find Printer Drivers](#)

CUPS for Developers

- [Introduction to CUPS Programming](#)
- [CUPS API](#)
- [Filter and Backend Programming](#)
- [HTTP and IPP APIs](#)
- [PPD API](#)
- [Raster API](#)
- [PPD Compiler Driver Information File Reference](#)
- [Developer Forum](#)

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User - Group - Other

- u=rwx
- g=rx
- o=rx
- `chmod u=rwx,g=rx,o=rx hello.sh`